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**WO 02/052460 A1**

(54) Title: CREDIT OR DEBIT CARD FRAUD PROTECTION SYSTEM

(57) Abstract: System for alerting card holders when fraudulent use of the card may be taking place. Each of several cardholders have respectively an account and an associated personal card. The system comprises a plurality of terminal associated with enterprises, the terminals being adapted for logging of individual account identifiers from the card in response to a transaction request; means for transmitting the approve/reject command back to the terminal comprising a transaction notification system having a database of account identifiers each having an associated electronic notification address. The system being adapted to send a message to this notification address when a transaction is carried out using a predetermined account identifier.

### Credit or debit card fraud protection system

The present invention concerns the field of credit or debit card payment systems, and relates particularly  
5 to a system for alerting card holders when fraudulent use of the card may be taking place.

Credit and debit card fraud is a serious problem in the developed world. Stolen or mislaid cards can  
10 easily be used to make fraudulent purchases, typically at a point of sale by forging of the real owner's signature. Credit card ghosting involves copying the identifying data from a card, or held in relation to a card, and then forming a duplicate card which is used  
15 for fraudulent purchases. Card fraud has proved to be a particularly serious problem for internet based commerce, in which transactions commonly involve credit or debit card payment. Payment method is without signature and simply relies upon the passing  
20 of card details and card holder address, which is clearly a system vulnerable to fraud.

Currently the financial organisation issuing the credit or debit card often limits the financial  
25 exposure of the customer by such fraudulent use, but

usually only once the cardholder has become aware that the card has been stolen or lost and informed the issuing organisation. The financial loss to the cardholder may nevertheless be significant. The loss 5 to the retailer or the card issuer (such as a bank) may often be more severe. Frequently the financial loss to the card issuer is very large because of the large number of transactions which can be made in a short space of time before the card is cancelled.

10

Accordingly attempts have been made to reduce fraudulent use of credit or debit cards. Systems have been proposed which concentrate on the structure and configuration of the card. For example cards have been 15 proposed which are fitted with a finger print recognition tab which only permits purchases by the correct user. This system has the disadvantage of cost of incorporating the fingerprint recognition hardware/software into the card. It also is not effective for a card system in which a user may wish to purchase over the phone or use for electronic sales for example over the internet because the user will 20 not be present at the point of sale.

25 Another system proposes incorporating a photograph of

the user on the card. This does not however prevent fraud by telephone purchase or electronic purchases where the user is not at the point of sale. The incorporation of a photograph into a card is an 5 administratively onerous step, as well as adding to manufacturing cost. Clearly if the overall cost outweighs the benefit from fraud reduction to the card issuer, then the card issuer is reluctant to initiate such a system.

10

The present invention seeks to provide a simple and easily implemented system for reducing card fraud which operates irrespective of whether the user is at the point of sale.

15

According to one aspect of the present invention there is provided a system for enabling card based commerce in which a plurality of individual cardholders are each provided with an account and an associated 20 personal card provided with unique account identifiers, which system comprises: a plurality of terminals associated with commercial enterprises, which terminals are adapted for logging of individual account identifiers from the card in response to a 25 transaction request, and further adapted to transmit

account and transaction indicators to an account administration system for the card, which account administration system is adapted to access the card holder's account and generate an approve or reject command in response to pre-arranged approval criteria, means updating the account details in response to an approved transaction, means for transmitting the approve/reject command back to the terminal whereby the transaction may be completed or cancelled,

10 characterised by a transaction notification system comprising a database of account identifiers each having an associated electronic notification address, means for transmitting transaction and account details provided by the point of sale terminal to the notification system, means for searching through the database of account identifiers in order to identify a match, the presence of which generates a transaction notification command, notification transmission means responsive to the notification command and adapted to

15 transmit a message to the notification address by electronic means, which message includes transaction details.

In preferred embodiments, the electronic notification address may be a mobile telephone number, an

electronic mail address or a pager address.

The notification transmission means may be adapted to transmit transaction details including: location of  
5 terminal, amount of transaction, nature of goods, date/time of transaction.

The notification message preferably includes card issuer contact information which provides the  
10 recipient of the message with an immediate contact address (e.g. phone number) in the event of a fraudulent or unexpected transaction.

The electronic notification address may be a mobile telephone address, an electronic mail address or a pager address. The notification system may, according to a preference specified by the card holder, be adapted to send an short messaging service (SMS) note to a mobile telephone owned by the user, a pager  
15 message or an e-mail to the user's internet service provider which may then be collected the user in his/hers preferred way (e.g. mobile e-mail or desktop email.) The message will typically indicate the time, place and nature of the transaction. This will allow a  
20 user to be quickly alerted to fraudulent use of a  
25

card, provided that he/she regularly checks for messages.

Following is a description by way of example only of a

5 method of putting the present invention into effect.

Credit/debit card transaction systems are well known and operated throughout the world. Worldwide systems are operated under the brand name VISA, Master Card & 10 American express. Many other systems operate but all use similar known technology which is not described in detail herein. The present invention uses the known technology of existing systems and adds an anti-fraud notification system. The system involves the storage 15 by the credit/debit card administrator of an additional personal identifier - an electronic notification address. This in one embodiment is a cellular telephone address compatible with the SMS system whereby text messages are transmitted to mobile 20 phones. Hence, the basic credit card transaction administration system is modified by adding a notification system which acts in response to a transaction.

25 A typical transaction process will now be described.

1. Consumer chooses an article to purchase and presents their card to the merchant.
2. The merchant swipes the credit card through an electronic point of sale (EPOS) transaction terminal.
- 5 3. The EPOS system accesses the relevant credit card network in order to permit an approval assessment for the transaction and logging of the transaction in the card holder's account.
- 10 4. Approval of the transaction is transmitted by the network to the EPOS terminal, whereupon a transaction receipt is printed and presented to the card holder for signature.
- 15 5. In parallel with step 4 the credit card network relays transaction identity and details to a credit card transaction fraud (CCTF) assessment gateway.
- 20 6. The CCTF system includes a look-up table of subscribers identified by credit card number. The CCTF system compares the numbers held in the table with the number of the credit card being used in the current transaction.
- 25 7. If the credit card is a subscribing card, then a further look up table is used to derive the preferred notification details, specifically the type of notification required and the address of that notification. This may be an SMS message, an e-mail or

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a pager.

8. A message is sent to the cardholder, for example by SMS message, indicating transaction details, e.g.

"Your VISA card was used on 02 December 2000 15-53 hrs

5 at Woolworths Islington to purchase sundry goods in the sum of »75-50. Please call your card issuer (telephone no...) if you wish to query this purchase".

9. The cardholder will take no further action if the  
10 transaction is one which he/she has approved. On the other hand if the transaction appears to be fraudulent the cardholder can contact his/her card issuer to cancel the card and prevent further transactions, as well as challenging the current transaction.

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The present invention provides a simple method for considerably reducing credit card fraud, particularly in situations where the cardholder is unaware that a card has been lost and has not cancelled the card, or  
20 where a ghost copy of the cardholder' card has been made and is being used fraudulently. A particularly useful feature of the invention is that currently available technology may be readily modified to take advantage of the method of the invention. In  
25 particular the standard transaction details forwarded

to the credit card network can be repeated to a CCTF gateway by the point of sale terminal, or forwarded to a CCTF gateway by the credit card network.

## Claims

1. A system for enabling card based commerce in which a plurality of individual cardholders are each provided with an account and an associated personal card provided with unique account identifiers, which system comprises: a plurality of terminals associated with commercial enterprises, which terminals are adapted for logging of individual account identifiers from the card in response to a transaction request, and further adapted to transmit account and transaction indicators to an account administration system for the card, which account administration system is adapted to accesses the card holder's account and generate an approve or reject command in response to pre-arranged approval criteria, means updating the account details in response to an approved transaction, means for transmitting the approve/reject command back to the terminal whereby the transaction may be completed or cancelled, characterised by a transaction notification system comprising a database of account identifiers each having an associated electronic notification address, means for transmitting transaction and account details provided by the point of sale terminal to the

notification system, means for searching through the database of account identifiers in order to identify a match, the presence of which generates a transaction notification command, notification transmission means responsive to the notification command and adapted to transmit a message to the notification address by electronic means, which message includes transaction details.

10 2. A system as claimed in claim 1 wherein the electronic notification address may be a mobile telephone number, an electronic mail address or a pager address.

15 3. A system as claimed in claim 2 wherein the notification transmission means is adapted to transmit transaction details: including location of terminal, amount of transaction, nature of goods, date/time of transaction.

20 4. A system as claimed in any preceding claim wherein the notification message includes card issuer contact information which provides the recipient of the message with an immediate contact address (e.g phone number) in the event of a fraudulent or unexpected

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transaction.

5. A system substantially as hereinbefore described.

## INTERNATIONAL SEARCH REPORT

Inten Application No  
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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G06F17/60 G07F19/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G06F G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 826 241 A (STEFFERUD EINAR A ET AL) 20 October 1998 (1998-10-20) column 2, line 6 - line 27 column 5, line 1 -column 8, line 40 —	1-5
X	EP 0 745 961 A (AT & T CORP) 4 December 1996 (1996-12-04) abstract column 3, line 1 -column 11, line 28 column 13, line 47 -column 16, line 31 —	1-5
X	WO 99 14711 A (ANDRASEV AKOS) 25 March 1999 (1999-03-25) page 6, line 5 -page 8, line 19 page 10, line 25 -page 12, line 25 —/—	1-5

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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